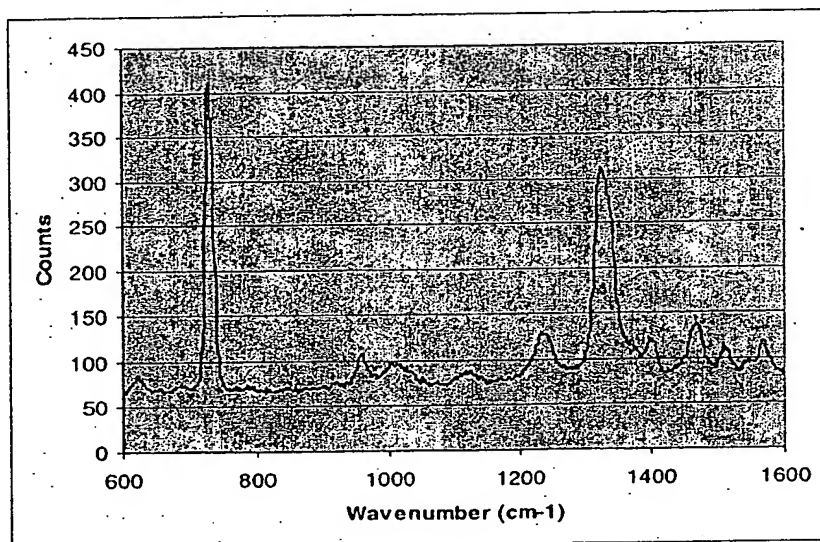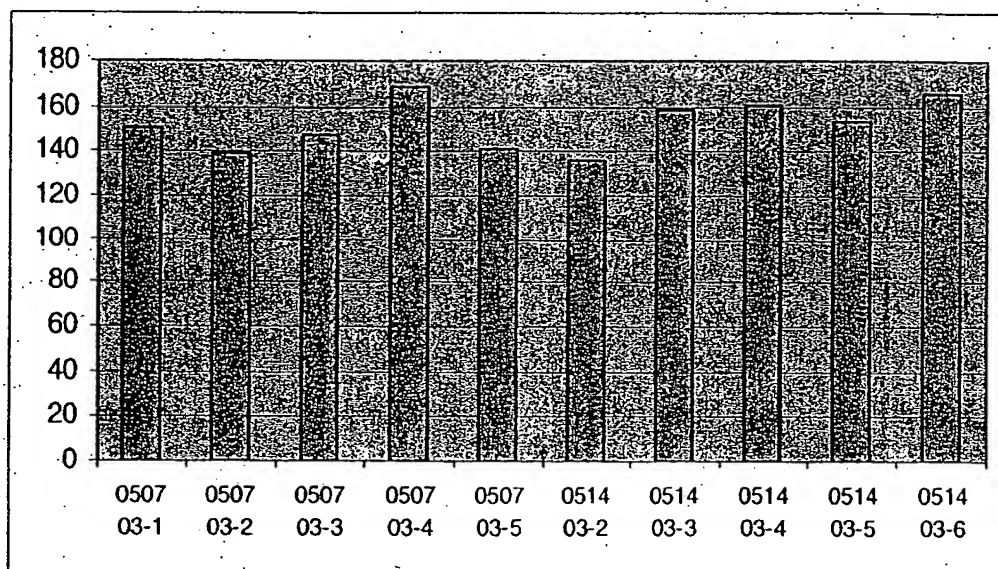**Figure 1. A typical Surface Enhanced Raman Spectrum of dAMP collected with Renishaw Ramascope at excitation wavelength 514nm.**

SERS Results: The reproducibility of the silver colloids for SERS applications was tested using 1mM dAMP. 20μl of dAMP was mixed with 160μl of silver colloids (containing 1mM Ag) and 40μl 0.5M LiCl as chemical enhancer. The Raman spectra of the mixture were recorded on a Renishaw Ramascope with Ar$^+$ laser at 514nm or on a home-built Raman spectrometer with a tunable laser at an excitation wavelength of 785nm.
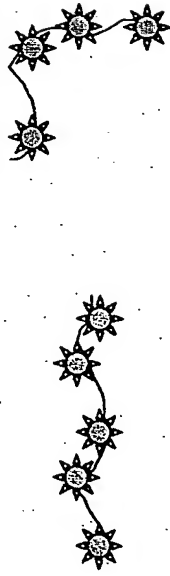
Figure 2: Reproducibility of silver produced by Method 2. The Raman signal at 1320 cm^{-1} was normalized against the best silver lot from an optimized titration method. The signal of the latter is set at 100%.
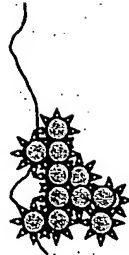

Significant improvement in the Raman enhancement and reproducibility was obtained with silver colloids prepared with Method 2. The Raman signal is on average 50% higher than the best silver lot from the titration method. The relative standard deviation is reduced to 7%.

Figure 3.

1) Surface of individual metallic particles is modified and proteins are adsorbed to individual particles

2) Surface of aggregated metallic particles is modified and proteins are adsorbed to the aggregate

3) Surface of patterned metallic surface is modified and proteins are adsorbed to the surface

Target protein

Surface modification layer

Metallic pillars or metal coated nanostructures